Evaluation of change in job knowledge and motivation due to interactions on a Facebook peer group

PROJECT REPORT

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Confidential

Acronyms and glossary

BRLPS	**Bihar Rural Livelihoods Promotion Society**
BRLP	**Bihar Rural Livelihoods Project**
SHGs	**Self-Help Groups**
MRP	**Main Resource Person**
CNRP	**Community Nutrition Resource Person**
CM	**Community Mobiliser**
MRP-HNS	**Master Resource Person- Health, Nutrition and Sanitation**
VOs	**Village Offices**
OBC	**Other Backward Classes**
CLF	**Cluster Level Federation**

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Abstract

JEEViKA is a joint initiative of the Government of Bihar and the World Bank that strives for the social and economic empowerment of the rural poor. Facebook and BMGF (Bill and Melinda Gates Foundation) partnered with JEEViKA to introduce peer groups of JEEViKA cadres on Facebook. As a part of that partnership, CSBC (Center for Social and Behaviour Change) conducted a rigorous evaluation to determine whether online peer training on topic-specific closed Facebook groups with carefully curated content improved topic knowledge, motivation, and job performance. To this end, we conducted an RCT with a treatment group that included participants in the health and nutrition Facebook group, where they received knowledge collaterals and opportunities to engage in work-related conversations and a control group with participants that were not part of the Facebook group. We used baseline and endline phone surveys to measure the impact of the Facebook groups.

SECTION 01:

INTRODUCTION

Introduction

Bihar Government, through the Bihar Rural Livelihoods Promotion Society (BRLPS), is spearheading the World Bank aided Bihar Rural Livelihoods Project (BRLP), locally known as JEEViKA with the objective of social and economic empowerment of the rural poor. JEEViKA works towards reducing poverty by enabling the poor households, through supporting Self-Help Groups (SHGs) of women, to access gainful employment and skilled wage employment opportunities, resulting in appreciable improvement in their livelihoods on a sustainable basis. Major focus areas of JEEViKA are social mobilization, financial inclusion, vulnerability reduction combined with the livelihood's enhancement and the sensitive and dedicated support structure to be put in place[1].

Dealing with over 28 thematic areas including Health and Nutrition, it has cadres at various levels helping to disseminate knowledge on these topics and inculcate behaviours such as methods of disease prevention, ante natal care, child nutrition, and growing of vegetable gardens etc. JEEViKA aims at enhancing livelihood of rural poor households as a part of poverty alleviation strategy in Bihar. Under the large mandate of vulnerability reduction and improving human development indicators of poor, it seeks to take a step beyond poverty reduction by empowering communities better utilize available services and resources and encourage them to adopt recommended health, nutrition, and sanitation behaviours. It seeks intensive Social and Behaviour Change Communication to inform, motivate, and support, households and communities.

Training for these cadres take place in in-person sessions based on specific knowledge collaterals. Facebook and BMGF have partnered with JEEViKA to create Facebook groups for each thematic area that JEEViKA works in, providing an online platform for the trainings. A peer group with cadres at different hierarchical levels to learn knowledge collaterals and engage in discussions and problem-solving exercises will increase learning and motivation, thus impacting job performance[2,3,4].

As a pilot experiment, we evaluated the effect of health and nutrition Facebook group with three cadres – the Main Resource Person (MRP), the Community Nutrition Resource Person (CNRP), and Community Mobiliser (CM). One Master Resource Person- Health, Nutrition and Sanitation (MRP-HNS) is positioned at each Cluster Level Federation (CLF), which is a unit typically in charge of 30-50 Villages. The MRP-HNS are a Cluster Level Resource Person for HNS whose responsibilities are to train, monitor, and provide support to the Community Mobilizers in rolling out HNS Behaviour Change Communication sessions in the SHGs. Community Nutrition Resource Person (CNRP) has been envisaged with a view to achieve health and

nutrition outcomes. They work with targeted households to understand and adopt better health, nutrition, and sanitation practices. They support VOs (Village Offices) and conduct campaigns and community awareness activities on pre-decided HNS issues. CNRP are placed at the Panchayat level covering a maximum number of 10 VOs. In order to maintain SHG accounts and records on weekly basis, ensuring generation of financial reports and nurturing of groups, a VO staff namely 'Community Mobiliser' has been instated functioning across the project. They augment the functioning of SHG and strengthen its entity.

SECTION 02:

METHODS

Experimental Design Overview

Our design was a framed field experiment. JEEViKA cadres of MRP, CNRP and CMs were recruited into two groups (one treatment arm and one control). Details of the recruitment criteria and the treatment arms are explained in the following sections.

Recruitment was followed by a baseline survey that included questions on knowledge, motivation, job performance indicators, smartphone and social media use, and demographic details. Treatment included knowledge collaterals and engagement on a health and nutrition Facebook group. A final endline survey was conducted that matched the baseline survey.

SAMPLE IDENTIFICATION

Our sample consisted of women JEEViKA cadres recruited by the JEEViKA organisation. The eligibility criterion was access to smartphones to access Facebook. All recruited members underwent training to create a Facebook account (if they didn't have one) and use it. Cadres for this pilot experiment were recruited from the Nalanda district of Bihar.

DATA COLLECTION

1. Baseline Phone Survey

Informed consent was first acquired along with the participant's phone number. This was followed by questions on primary outcome variables: knowledge on health and nutrition, motivation to do this job, and job performance indicators. Additional questions on smartphone ownership, comfort in using smartphones, time spent on common social media platforms, and reasons to use social media were included. Demographic information was also collected as useful covariates.

2. Facebook Group

The treatment group was added to a Facebook group that received carefully curated content on health and nutrition topics, as well as other messages to increase engagement and discussion on job-related topics on the group. The details of the intervention are outside the purview of this evaluation.

3. Endline Survey

The endline survey followed the same format as the baseline survey with questions on primary outcome variables of knowledge, motivation, and job performance. Additionally, contamination checks (checking if a control participant has entered treatment) and spill-over checks (checking if knowledge collaterals have reached

control participants) were added. Questions on internet connectivity problems and the usefulness of the group were also included.

RANDOMISATION

Participants from each CLF were assigned to one of two groups using stratified cluster randomisation. Participants were clustered at the CLF level, i.e., each CLF was assigned to a treatment or control group. A stratified random sampling process ensures equal numbers of each block (an administrative unit above CLF) in treatment and control.

SAMPLE SIZE DETERMINATION

Our sample size is based on similar previous studies. This being a phase I study, we leaned towards a smaller sample to get a quick estimate of how effective the Facebook group is. Three benchmark papers[5,6,7] were used to estimate the per-arm sample and cluster size required for the JEEViKA Facebook Groups Evaluation (power = 0.8, alpha = 0.05). All three papers conducted a cluster randomised controlled trial with frontline health workers in Bihar, India. Their target sample was similar to JEEViKA's health and nutrition workers, who are also based in Bihar. The outcome indicator of interest was job performance, and effect sizes from secondary outcomes, including job satisfaction and job confidence, were also extracted. Since none of these papers revealed the intra-cluster correlations of their sample, we estimated sample size assuming three potential ICCs: 0.05, 0.1, and 0.2. Power analysis gives us sample estimates between 35-442 per arm and 1-16 per cluster.

OUTCOME VARIABLES

In this pilot experiment, we primarily tested any increase in knowledge on health and nutrition topics, increase in motivation, and, most directly, a change in self-reported job performance measures between endline and baseline surveys.

See Table 1 for a full list of primary and secondary outcome variables below and how each construct's outcome measure was created.

TABLE 1: DESCRIPTION OF OUTCOME VARIABLES

OUTCOME VARIABLE	DESCRIPTION [1]	OUTCOME MEASURE

KNOWLEDGE	A total of 14 questions on health, nutrition, and COVID-19 vaccine topics.	Number of correct responses across 14 questions. Variable type: Numerical (0-14)
MOTIVATION	9 Likert scale ratings (1-7) on reasons that motivate them to do this job. These point towards prosocial7, intrinsic, integrated, identified, introjection, extrinsic, and amotivation[8]. Scale agreement for each reason that goes from 1- completely disagree, 2- disagree, 3- somewhat disagree, 4- neither agree nor disagree, 5 – somewhat agree, 6- agree, 7- completely agree.	For prosocial and intrinsic motivations, there are 2 questions each. Those two ratings will be averaged to create one value per type of motivation. Variable type: Numerical (1-7)
JOB PERFORMANCE INDICATOR	5 questions per job designation (CM, MRP, CNRP) that indicate performance during Jan, Feb, Mar, 2021	A composite job performance score is created by adding the answers to these 5 questions. Variable type: Numerical
SMARTPHONE + SOCIAL MEDIA APP USE[2]	1 Likert scale for smartphone use comfort 1-7 Use of apps – Facebook, WhatsApp, YouTube, Instagram, Twitter, and Telegram in a scale of 1-4	A composite scale for smartphone use is created by subsampling the scale 1-7 to 1-4 and adding all of the values. Variable type: Numerical (0-28)

[1] For further details on all outcome measures across tables, please refer to the survey instrument here.

[2] Note: 1 other question on reasons of smartphone use is treated as qualitative data. Similarly, a question on vaccine barriers will also be treated as qualitative data.

Demographic information was also collected and used as covariates. See Table 2 for a full description of these variables.

TABLE 2: DESCRIPTION OF DEMOGRAPHIC VARIABLE

OUTCOME VARIABLE	DESCRIPTION	OUTCOME MEASURE
COVARIATES: DEMOGRAPHICS	Completed education level: did not go to school/ did not complete primary school, primary school, secondary school, 10th grade completed, 12th grade completed, undergraduate degree, post-graduate degree.	Raw data used. 5 levels: 1,2,3,4,5,6,7 Variable Type: Ordinal (1-7)
	People in the household.	Grouped into 3 or less, 4-7, 8+ Variable Type: Ordinal (1-3)
	Monthly Household Income grouped into less than Rs. 5000, between Rs. 5000 – Rs. 10000, between Rs. 10000 – Rs. 15000, between Rs. 15000 – Rs. 20000, between Rs. 20000 – Rs. 25000, between Rs. 25000 – Rs. 30000, more than 30000.	Variable Type: Numerical (1-7)
	Religion and Caste combined: Hindu-General, Hindu-OBC, Hindu-SC mahadalit, Hindu-SC non-mahadalit, Hindu-ST, Muslim, Christian, Sikh, Buddhist, Other	Variable (1-10) Variable Type: Categorical (1-10)

Age	Variable Type: Continuous
Part of JEEViKA WhatsApp groups	2 levels: 1 = Yes, 2 = No Binary variable
Additional Employment apart from JEEViKA: Agriculture, Self-employed, none	2 levels: 1 = Additional Employment, 2 = other Binary variable

BACKCHECK

To ensure the data quality at both baseline and endline, 10% of the participants across treatment and control groups and enumerators were chosen for an additional short survey. A separate set of enumerators conducted these surveys a week after the main data collection. It included a few questions on the primary outcome variable of knowledge, motivation, and demographic variables.

MODEL SPECIFICATIONS

Ordinary Least Squares regression was used for discrete numerical variables (7 motivation variables, smartphone use, job indicator, except the knowledge construct).

For the knowledge variable, we applied censoring using a Tobit regression model.

For every outcome measure, we used three models, with and without controlling for demographic information and measuring the increase from baseline measures.

With ten outcome measures (1 knowledge + seven motivation + 1 job performance score + 1 smartphone use) and three models, we have 30 hypothesis tests.

M1: Y ~ treatment_assignment + error

M2: Y ~ treatment_assignment + demographic_covariates + error

M3: Y ~ treatment_assignment + demographic_covariates + baseline_measures + error

Y = outcome measures in Table 1 (10 outcome measures)

treatment_assignment = dummy variable, 1 for treatment and 0 for control.

All analyses, including randomisation, data checks, etc., were conducted using custom-made MATLAB (The MathWorks, Inc) scripts in R (R Core Team, 2014)[10].

SECTION 03:

RESULTS

Results

In this experiment, we assessed the effect of the health and nutrition Facebook group of different JEEViKA cadres on knowledge about health and nutrition, extrinsic and intrinsic motivation, and job performance. We hypothesised that (1) training in a peer group based on specific knowledge collaterals leads to increased knowledge, (2) extrinsic motivation will be boosted by encouraging dialogue among cadres at all levels, (3) intrinsic motivation will increase through participating in work-related discussions and problem-solving, and (4) increased ability and motivation from peers will result in improved job performance. We assessed whether the participants considered the Facebook group a viable problem-solving platform through vignettes.

An OLS regression was run for the primary outcomes with four models, sequentially adding different kinds of predictors. A linear probability model was run for the secondary outcomes modelling increase in specific types of motivation. The model with all predictors was:

Outcome ~ Treatment + Cadre + f(Demographics) + BL Measure + f(Smartphone) + Block FE

Cadre has three levels: MRP, CNRP, and CM. Demographic features included dummy variables for age, Hindu or not, OBC or not, 10th pass or not, 12th pass or not, college graduate or not, household income below 5K, household income between 5-10K, household income more than 10K, and the number of household members. The Smartphone features include dummies for smartphone ownership, smartphone comfort and the number of apps used by the respondent. We also controlled for the different administrative blocks where the participants were residing.

BALANCE CHECK

All baseline indicators were balanced between treatment and control groups except for the demographic variable '% OBC', i.e. the percentage of participants belonging to Other Backward Classes (OBC), with the control group having 64.7% of participants belonging to OBC and the treatment group having 78.8% ($t_{285} = 2.68$, $p = 0.008$). All other outcome measures at baseline were balanced (Table 3).

TABLE 3: BALANCE CHECK BETWEEN INDICATORS AND OUTCOME MEASURES AT BASELINE

	BALANCE CHECKS			BALANCE CHECKS	
INDICATOR @ BL	CONTROL (N=136)	TREATMENT (N=151)	OUTCOME MEASURE @ BL	CONTROL (N=136)	TREATMENT (N=151)
AGE	32.2	32.3	KNOWLEDGE SCORE	10.9	11.1
% HINDU	99.3	96.7	MOTIVATION SCORE	5.2	5.2
% OBC	64.7	78.8	AMOTIVATION	1.4	1.5
% 10th PASS	26.5	32.5	EXTERNAL MOTIVATION	0.824	0.815
% 12th PASS	37.5	31.1	INTRINSIC MOTIVATION	1.96	1.98
% COLLEGE GRADUATE	30.1	27.2	PROSOCIAL MOTIVATION	0.978	0.967
% HH INCOME: LESS THAN 5K	29.4	27.2	PERFORMANCE: Q1	2.4	2.6
% HH INCOME: 5K-10K	46.3	43.0	PERFORMANCE: Q2	15.1	12.8
% HH INCOME:	22.8	29.1	PERFORMANCE: Q3	4.5	4.8

MORE THAN 10 K					
# HH MEMBERS	6.23	6.23	PERFORMANCE: Q4	6.23	6.23
% OWN A SMARTPHONE	68.4	72.8	PERFORMANCE: Q5	3.5	3.4
% SMARTPHONE COMFORT	74.3	74.2			
#APPS USED	1.79	1.92			

ATTRITION CHECK

Attrition checks were run for all demographic variables at Endline that showed attrition was balanced (Table 4) across all except for '% OBC', percentage of participants belonging to Other Backward Classes ($t_{248} = 2.46$, $p = 0.015$); '% Owned a phone', that is the percentage of participants that own a phone ($t_{134} = -2.62$, $p = 0.010$); and '# Apps used', that is the number of apps used by the participants ($t_{134} = -1.70$, $p = 0.091$).

TABLE 4: ATTRITION CHECKS FOR DEMOGRAPHIC VARIABLES

	ATTRITION CHECKS							
INDICATORS	CONTROL STAYED (N = 119) (1)	CONTROL ATTRITED (N = 17) (2)	TREATMENT STAYED (N = 131) (3)	TREATMENT ATTRITED (N = 20) (4)	(1) vs (2)	(3) vs (4)	(2) vs (4)	(1) vs (3)
AGE	32.29	31.59	32.62	30.70	0.70	1.92	0.89	-0.33
% HINDU	99.2	100	96.9	95.0	-0.008	0.019	0.050	0.022
% OBC	63.9	70.6	77.9	85.0	-0.067	-0.071	-0.144	**-0.140**
% 10th PASS	25.2	35.3	32.8	30.0	-0.101	0.028	0.053	-0.076
% 12th PASS	37.0	41.2	31.3	30.0	-0.042	0.013	0.112	0.057
% COLLEGE GRADUATE	31.9	17.6	26.7	30.0	0.143	-0.033	-0.124	0.052
% HH INCOME: LESS THAN 5K	30.3	23.5	26.7	30.0	0.067	-0.033	-0.065	0.035
% HH INCOME: 5K-10K	45.4	52.9	41.2	55.0	-0.076	-0.138	-0.021	0.042

% HH INCOME: MORE THAN 10 K	22.7	23.5	31.3	15.0	-0.008	0.163	0.085	-0.086
# HH MEMBERS	6.23	6.24	6.33	5.60	-0.008	0.728	0.635	-0.101
% OWN A SMARTPHONE	72.3	41.2	72.5	75.0	**0.311**	-0.025	**-0.338**	-0.003
% SMARTPHONE COMFORT	74.8	70.6	75.6	65.0	0.042	0.106	0.056	-0.008
# APPS USED	1.85	1.41	1.95	1.75	**0.437**	0.197	-0.338	-0.098

KNOWLEDGE SCORE

Knowledge Score is a constructed variable that describes how many of the 14 knowledge questions cadres answered correctly regarding breastfeeding, child nutrition, balanced diet, nutrition and health during pregnancy, complementary feeding, disease prevention, growing vegetable gardens, ANC (Antenatal Care), and COVID-19. The mean knowledge score score at the baseline (N=250) was 11.0 (range: 8-14). The knowledge score was found to be balanced (t_{176} = -1.277; p = 0.203) at baseline, with the mean score of the control group being 10.9 and the mean score of the treatment group being 11.1. The knowledge score had a positive but statistically insignificant effect of 0.179 (Cohen's d = 0.034).

MOTIVATION SCORE

The Motivation Score is a constructed variable that describes how many questions the respondent rated herself as having a motivation score of 4 or more on a scale of 1-7. 9 Motivation questions were adapted that assessed intrinsic motivation, identified motivation, integrated motivation, prosocial motivation, introjected motivation, external motivation and amotivation[2]. The mean motivation score at

baseline (N=250) was 5.24 (range: 3-7). At baseline, the motivation score was balanced (t_{176} = 0.332; p = 0.740), with the control group's mean score of 5.25 and the treatment group's mean score of 5.22. The effect of motivation was 0.038 (Cohen's d = 0.022), which was positive but statistically insignificant.

JOB PERFORMANCE SCORE

The job performance score is a sum of the five performance questions, each converted into a normalised score. The five job performance questions were different for each cadre and were based on the job description of these roles, vetted by the JEEViKA team. They were asked for three months: January, February, and March 2021 at baseline (to avoid the COVID lockdown period in India between April - June 2021); and December, January, and February 2022 at Endline. At baseline (N=250), the mean job performance score was 0.999 (range: 0 - 3.48). It was balanced at the baseline (t_{146} = -0.203; p = 0.840), with a mean score of 0.992 for the control group and a mean score of 1.006 for the treatment group. Job performance had a positive but statistically insignificant effect of 0.050 (Cohen's d = 0.154).

VIGNETTE SCORE

The Vignette Score determined the number of hypothetical work-related questions where "Facebook" was selected as a way to handle the work situation; other responses were calling the supervisor directly or using WhatsApp. As the Facebook group was introduced during the treatment phase, these questions were only asked at Endline. It showed a positive but statistically insignificant effect of 0.059 (Cohen's d = -0.065), with a mean score of 0.420 for the control group and a mean score of 0.473 for the treatment group (t_{177} = -0.520; p = 0.609).

IMPROVEMENT IN INDIVIDUAL MOTIVATION TYPES

Further, we tested whether the intervention changed amotivation, intrinsic, extrinsic and prosocial motivation. All these secondary outcomes were statistically insignificant, and the effect sizes (cohen's d) for all outcomes are negligible (Table 5). Outcomes such as Intrinsic and Prosocial Motivations were already extremely

high at the baseline (98% of respondents had reported high values for both at baseline), a possible reason for no significant increase.

TABLE 5: TREATMENT EFFECTS FOR IMPROVEMENT IN INDIVIDUAL MOTIVATION TYPES

	TREATMENT ASSIGNED (N = 250)	EFFECT SIZE (Cohen's d)
AMOTIVATION* (Mean = 0.252)	0.030	0.000
INTRINSIC MOTIVATION (Mean = 0.016)	-0.008	0.140
EXTERNAL MOTIVATION (Mean = 0.108)	-0.001	-0.044
PROSOCIAL MOTIVATION (Mean = 0.020)	0.000	-0.044

OBSERVATIONAL & IV ANALYSIS

We conducted an observational analysis by running all the models on a subgroup of respondents who confirmed they got the treatment. The sample size of the subset equalled 133 (53% of Endline), with 72 in the control group and 61 in the treatment group. These were the people in both groups who confirmed their group status, i.e. the 61 people in treatment who said they were currently on the Facebook group and the 72 people in control who said they were not in the group. Low confirmation of treatment status levels suggests significant contamination levels and low intervention uptake in the sample.

In this "treated" subsample, the job performance score at the Endline revealed a marginally significant (at the 10% level) rise. At baseline (N=133), the mean job performance score was 0.99 (range: 0 - 2.93). It was imbalanced at the baseline (t_{132} = -2.043; p = 0.042), with a mean score of 1.08 for the control group and a mean

score of 0.93 for the treatment group. Job performance positively affected 0.228 (Cohen's d = 0.152, p = 0.088). However, the sample size for the "treated" models may be insufficient to statistically assess the impact (observed power based on effect size and the sample size is 0.151). Being "treated" also had a beneficial influence (statistically significant at the 1% level) on respondents' likelihood of using "Facebook" to raise issues (vignette score). All other results were statistically insignificant (Table 6).

TABLE 6: TREATMENT EFFECTS FROM THE OBSERVATIONAL ANALYSIS

TREATMENT ASSIGNED vs TREATED: TREATMENT EFFECT

	TREATMENT ASSIGNED (N = 250)	TREATED (N = 133)
KNOWLEDGE SCORE	0.179	0.273
MOTIVATION SCORE	0.038	-0.146
PERFORMANCE SCORE	0.050	0.228*
VIGNETTE SCORE	0.059	0.710***
AMOTIVATION*	0.030	-0.036
INTRINSIC MOTIVATION	-0.008	0.008
EXTERNAL MOTIVATION	-0.001	-0.001
PROSOCIAL MOTIVATION	0.000	0.000

(* = p < 0.1, *** = p < p < 0.010)

Lastly, we used an instrumental variable approach. "Treated (IV Approach)" lists the experimental results when actual treatment[1] was used as the explanatory variable, instrumented on treatment assignment to mitigate endogeneity. All outcomes were statistically insignificant (Table 7).

TABLE 7: TREATMENT EFFECTS FROM THE INSTRUMENTAL VARIABLE ANALYSIS

TREATMENT ASSIGNED vs TREATED: TREATMENT EFFECT

	Treatment Assigned (N = 250)	Treated (IV Approach) (N = 250)
KNOWLEDGE SCORE	0.186	-1.028
MOTIVATION SCORE	0.025	-0.152
PERFORMANCE SCORE	0.057	-0.249
VIGNETTE SCORE	0.041	0.189
AMOTIVATION*	0.023	-0.142
INTRINSIC MOTIVATION	-0.008	0.049
EXTERNAL MOTIVATION	-0.001	0.004
PROSOCIAL MOTIVATION	0.000	0.000

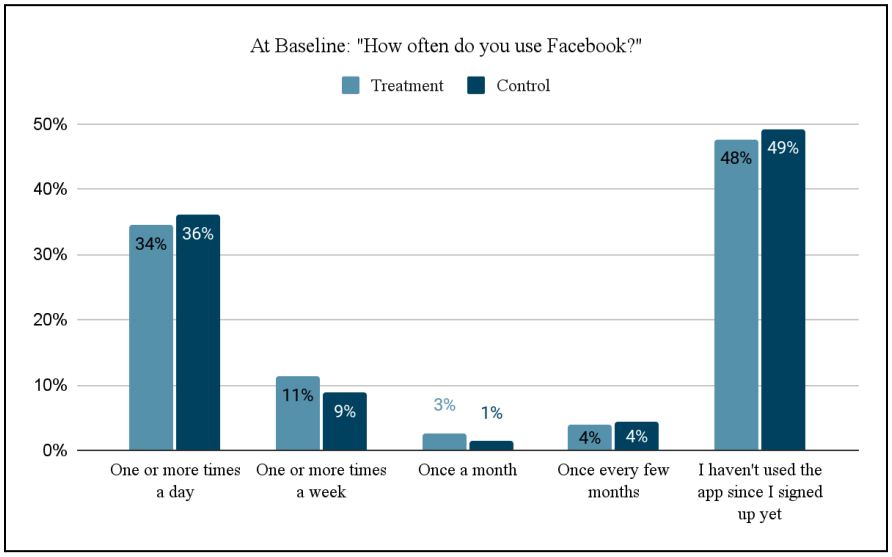
[1] the being 'treated' in the above section. Instead of using that to create a subsample, here we used it as a factor in the regression.

INTERVENTION UPTAKE AND FACEBOOK USE

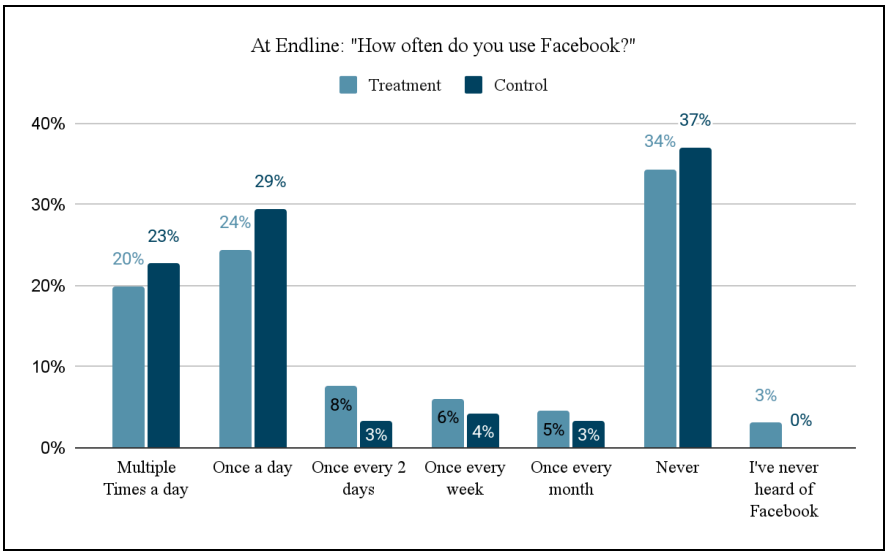
An important finding from the survey was that almost half of the treatment and control group participants had not used Facebook at Baseline (Figure 1). A significant proportion (37% of the treatment group) had never used Facebook at Endline, suggesting a low intervention uptake.

FIGURE 1: FACEBOOK USAGE AT BASELINE AND ENDLINE. A. THE FREQUENCY OF USE OF FACEBOOK AT BASELINE SEPARATELY FOR THE CONTROL AND TREATMENT GROUPS. B. THE SAME AT ENDLINE.

A.



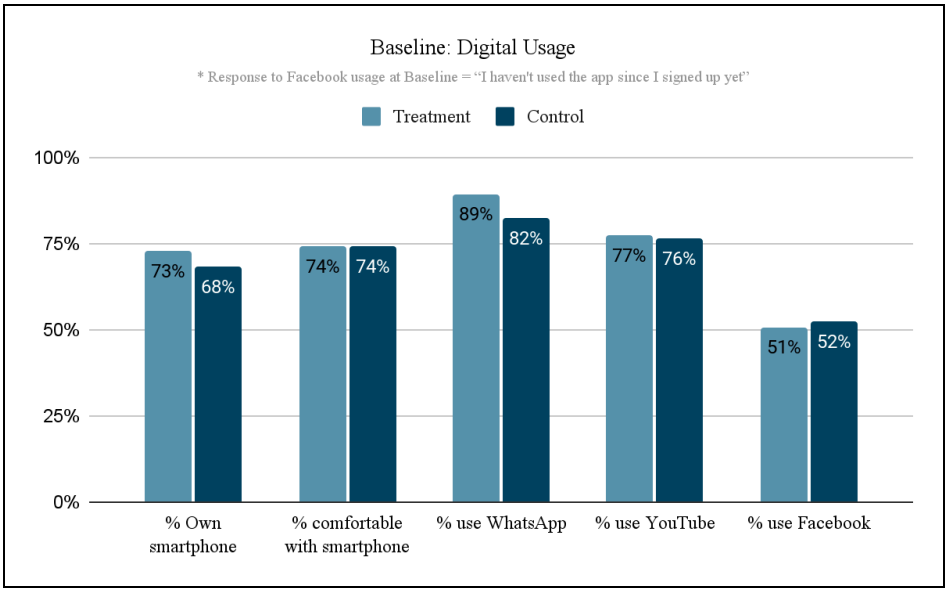
B.



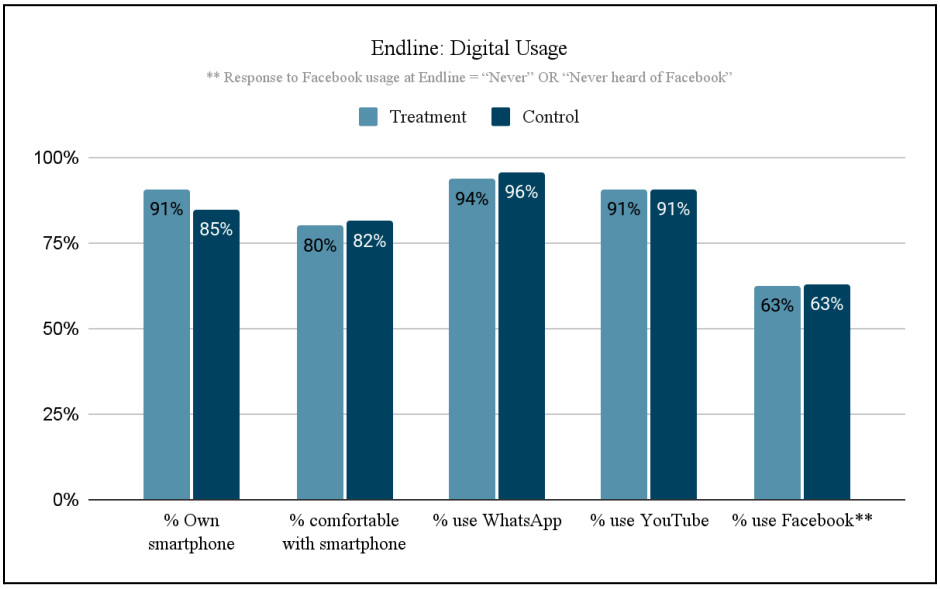
Another significant result pertains to the participants' digital usage. We saw similar usage of different apps between control and treatment groups at Baseline and Endline (Figure 2). While the use of Facebook increased from about 52% to 63%, it was true for both control and treatment. Additionally, the usage of other apps, especially WhatsApp (> 90%), is much higher than that of Facebook, suggesting that it is a better platform for this sample.

FIGURE 2: DIGITAL USAGE AT BASELINE AND ENDLINE. A. THE PROPORTION OF PARTICIPANTS THAT HAD A SMARTPHONE, HOW COMFORTABLE THEY WERE USING IT (A RATING OF 3 OR HIGHER WAS CONSIDERED COMFORTABLE ON A SCALE OF 1-5), AND IF THEY USED WHATSAPP, YOUTUBE AND FACEBOOK. B. SAME FOR ENDLINE.

A.



B.



To delineate the engagement in the Facebook Group, we asked via our survey how the participants engaged in the group: by answering polls, posting/commenting or reading posts/comments. Figure 3 below portrays how and what proportion of participants engaged with the Facebook group in the assigned and treated groups, respectively. We saw a higher engagement in the treated group.

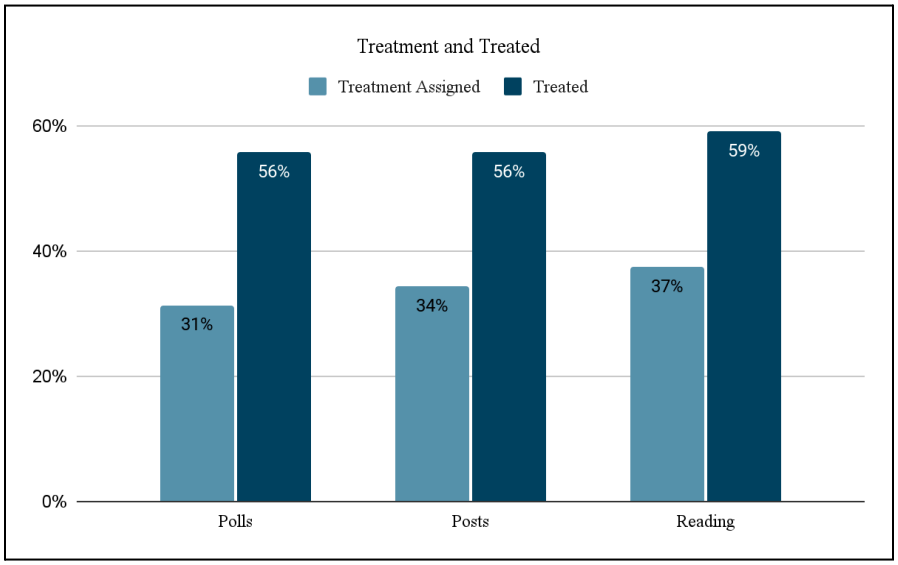
Responses to -

1. Did you participate in the JEEViKA Facebook group by answering polls?

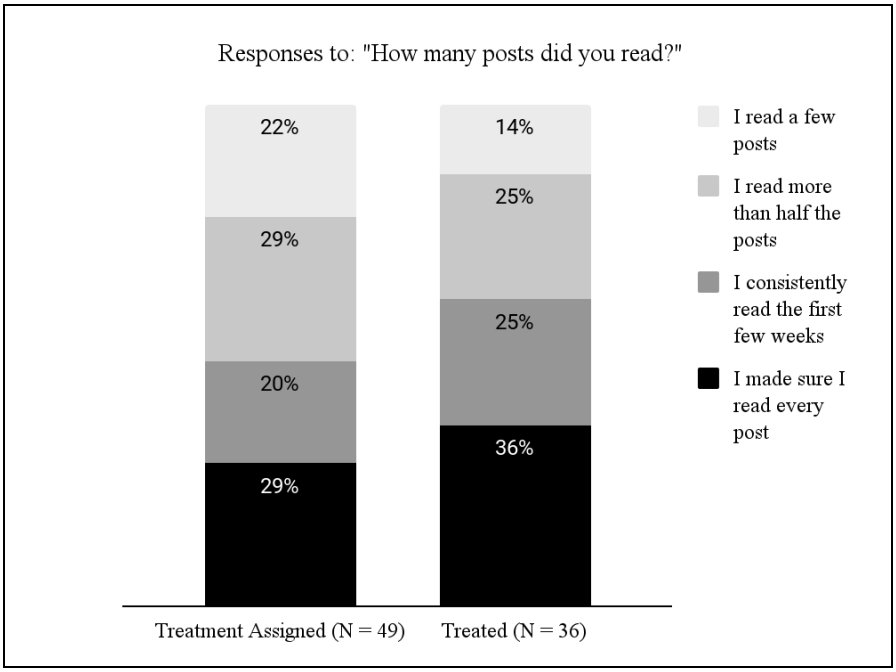
2. Did you participate in the JEEViKA Facebook group by posting something or commenting on the group?
3. Did you participate in the JEEViKA Facebook group by reading posts or comments on the group, and
4. How many posts did you read?

FIGURE 3: A. RESPONSES ABOUT HOW PARTICIPANTS ENGAGED IN THE FACEBOOK GROUP BY PARTICIPATING IN POLLS, COMMENTS OR READING POSTS. B. SELF-REPORTED RESPONSES OF HOW MANY POSTS PARTICIPANTS READ

A.



B.



When asked about the ease of participation in the JEEViKA group on Facebook, a significant proportion (63% of the treatment-assigned group and 93% of the treated group) answered that it was either easy or very easy to participate in the Facebook group (Figure 4). However, when specifically asked about problems faced while accessing Facebook, a large proportion of the sample mentioned internet challenges and a lack of time to interact with or participate in the group (Figure 5).

FIGURE 4: EASE OF PARTICIPATION IN THE JEEVIKA GROUP ON FACEBOOK. A MAJORITY OF PARTICIPANTS REPORTED FACEBOOK TO BE EASY TO USE.

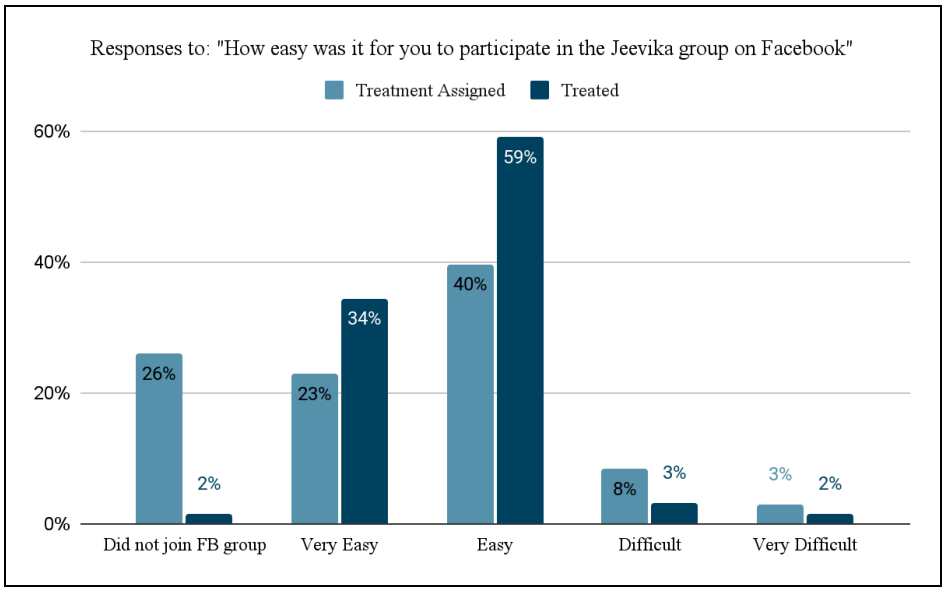
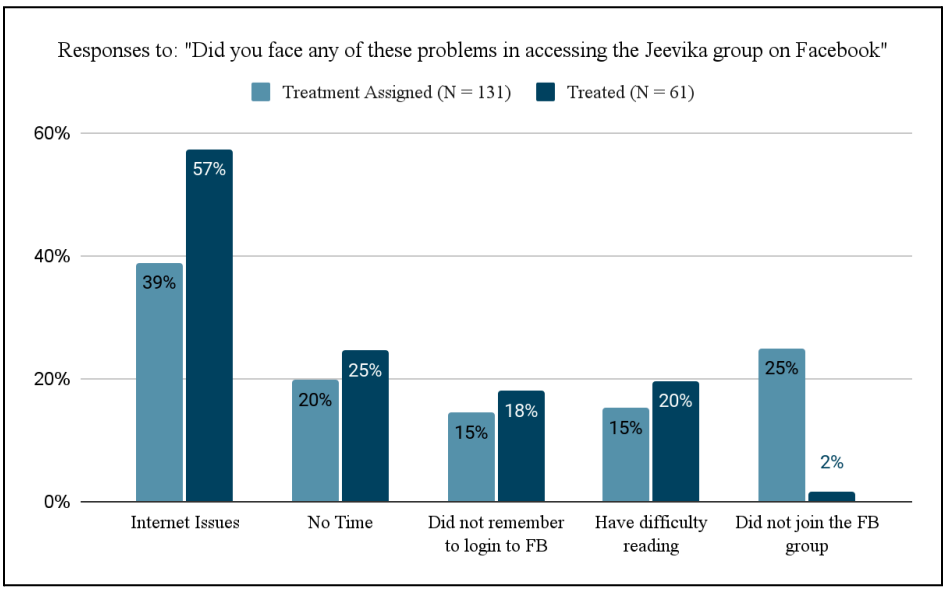


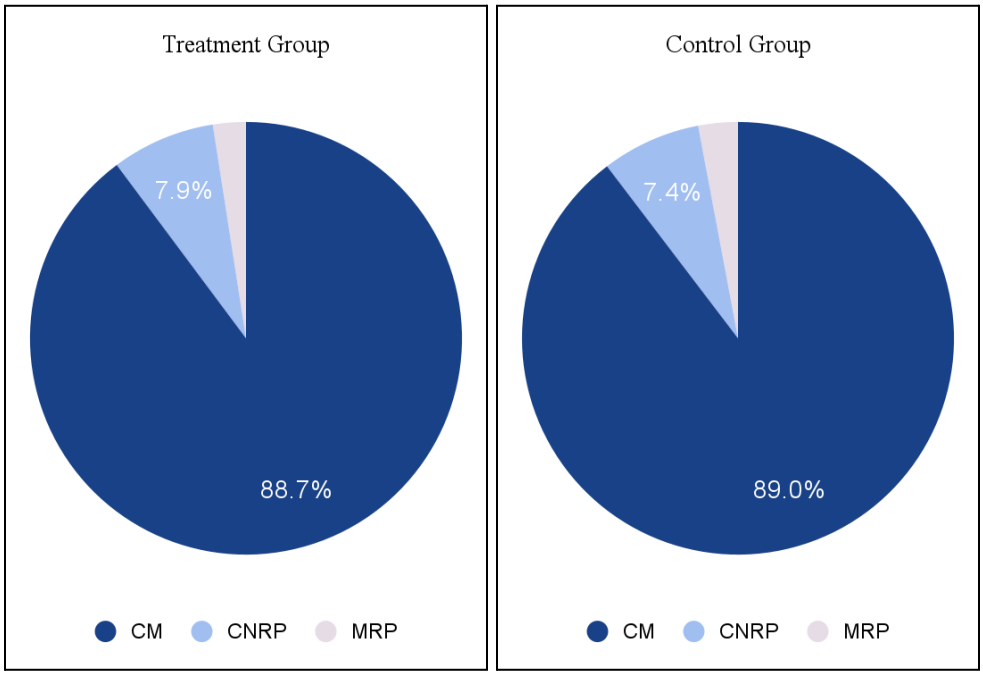
FIGURE 5: DIFFICULTIES FACED BY PARTICIPANTS WHILE ACCESSING THE JEEViKA GROUP ON FACEBOOK. INTERNET ISSUES WERE THE MOST COMMON PROBLEM ENCOUNTERED BY PARTICIPANTS.



DEMOGRAPHIC CHARACTERISTICS

The Cadres' ages ranged from 19 to 55 years, with an average of 32.28 years, and the reported average household size was 6.23 (range: 2-19). The majority of both the treatment group (88.7%) and control group (89%) were Community Mobilisers (Figure 6).

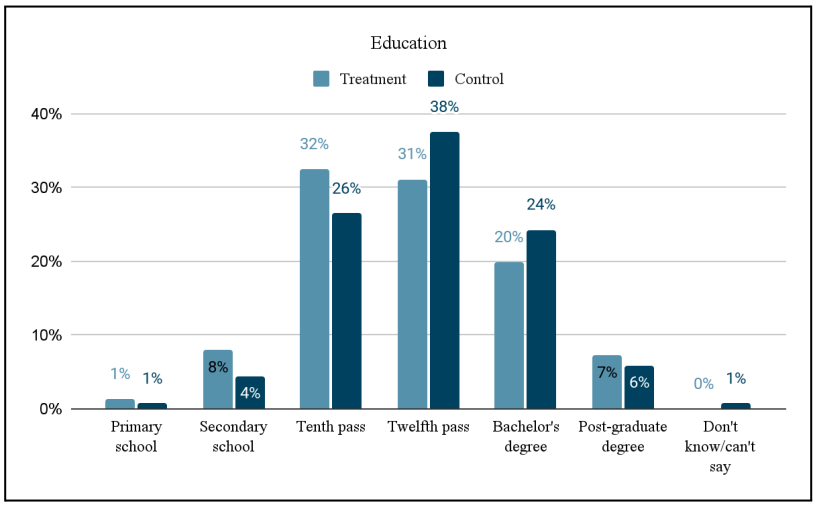
FIGURE 6: SHOWS THE DIFFERENT CADRES IN TREATMENT AND CONTROL GROUPS. CMS WERE THE MAJORITY OF BOTH GROUPS.



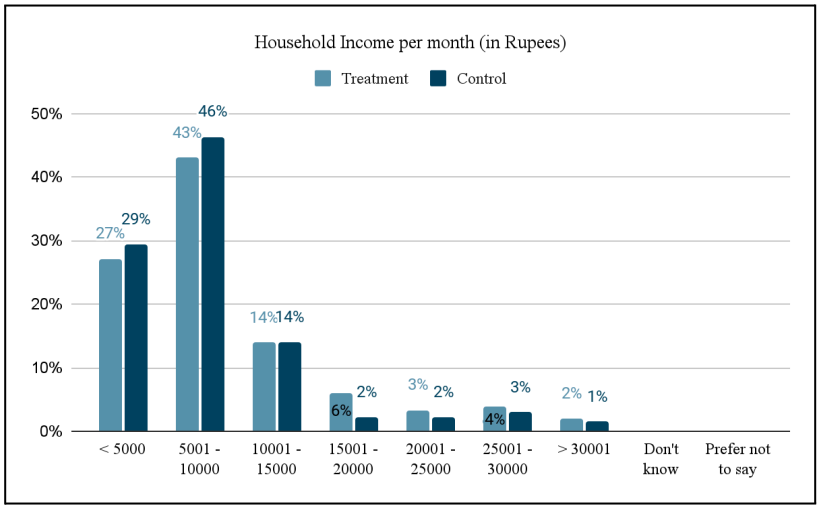
Other essential demographic features of education, livelihood and household income revealed that a preponderance of the participants was either tenth pass, twelfth pass or had a bachelor's degree (Figure 7A). Most participants belonged to households with an income of fewer than 10,000 Rs per month (Figure 7B). 53% of the treatment group and 46% of the control group, i.e., almost half of them, were engaged in agricultural work (apart from working for JEEViKA) (Figure 7C).

FIGURE 7 : DEMOGRAPHIC FEATURES. A: A HISTOGRAM OF THE HIGHEST LEVEL OF EDUCATION OF THE PARTICIPANT. B. SHOWS THE HOUSEHOLD INCOME OF THE PARTICIPANTS FROM ALL SOURCES. C. CHARACTERISES THE OTHER LIVELIHOODS APART FROM JEEViKA OF THE CADRES.

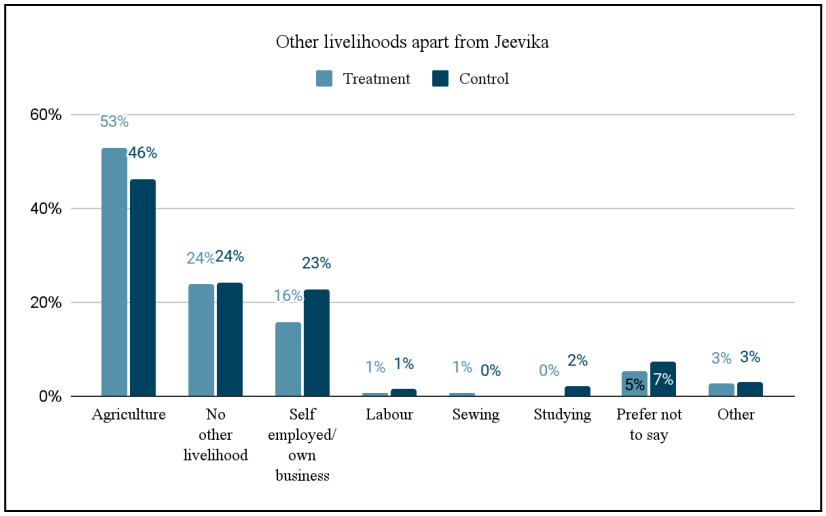
A.



B.



C.


Other livelihoods apart from Jeevika
Treatment
Control
60%
40%
20%
0%
53%
46%
24%
24%
16%
23%
1%
1%
1%
0%
0%
2%
5%
7%
3%
3%
Agriculture
No other livelihood
Self employed/ own business
Labour
Sewing
Studying
Prefer not to say
Other

SECTION 04:

DISCUSSION

Discussion

The overall findings showed a positive, albeit statistically insignificant, effect of the health and JEEViKA Facebook groups of different cadres on their knowledge, motivation, and job performance. This effect size was also negligible across all primary and secondary outcome variables. The observational analysis showed that in the 'treated' subsample, the performance score at the endline revealed a marginally significant (at the 10% level) rise. Being in the 'treated' group also improved (statistically significant at the 1% level) the respondents' likelihood of using Facebook to raise issues (vignette score). However, the sample size was insufficient to gauge the intervention's impact. The responses to the survey helped us understand that a large portion of the treatment group did not receive treatment, and many control participants were exposed to the Facebook group. This contamination reduced the interpretability of the results significantly.

Additionally, survey results showed that almost half of the treatment and control group participants had not used Facebook at the baseline. While at Endline, most participants in the treatment and control groups used smartphones and various applications, Facebook was not a commonly used app for this sample. Internet challenges and a lack of time to interact with or participate in the group were the most frequent issues reported by many participants.

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We would like to express our sincere gratitude to all those who have contributed to the completion of this research project. We thank Dr. Sharon Barnhardt, our advisor, for their invaluable guidance, continuous support, and constructive feedback throughout the research process.

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SECTION 05:

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SECTION 06:

APPENDIX

KNOWLEDGE QUESTIONS

KNOW 1	At what age should exclusive breastfeeding stop for children?
KNOW 2	How many times in a day should a 9-11-month-old child be fed food?
KNOW 3	What is the appropriate consistency of the food that should be fed to a 6-8-month-old child?
KNOW 4	How many of the total 7 food groups should be included at the very least in a 6-23-month-old child's daily meals?
KNOW 5	What are the benefits of eating green leafy vegetables like spinach, bathua, fenugreek and what kind of nutrition does one get?
KNOW 6	What is the appropriate healthy drink that should be given to children suffering from diarrhoea?
KNOW 7	Which of these tablets should a pregnant woman consume for a healthy pregnancy?
KNOW 8	What is the recommended number of minimum antenatal care visits for a pregnant woman?
KNOW 9	Please select the correct components of an antenatal care visit that a pregnant woman should undergo
KNOW 10	Which one of these tasks does the ANM do that the ASHA and Anganwadi Workers do not?
KNOW 11	What are the details one needs to provide when registering for COVID-19 vaccination?

KNOW 12-1	What is the appropriate time lag between COVID vaccination doses? Covaxin
KNOW 12-2	What is the appropriate time lag between COVID vaccination doses? Covishield
KNOW 13	Which of these are the correct practices related to mask-wearing?
KNOW 14	Which of these is the correct way to do social distancing?

MOTIVATION QUESTIONS

MOTIVATION 1	**Intrinsic motivation**	"I do this work for the satisfaction I experience from taking on interesting challenges and doing difficult tasks"
MOTIVATION 2	**Intrinsic motivation**	"I do this work because I derive much pleasure from learning new things"
MOTIVATION 3	**Identified motivation**	"I chose this type of work to attain my career goals and certain objectives"
MOTIVATION 4	**Integrated motivation**	"I do this work because this job has become a fundamental part of who I am"
MOTIVATION 5	**Amotivation**	"I don't know why I'm doing this job, too much is expected of us"
MOTIVATION 6	**Prosocial motivation**	"I care about benefiting others through my work"
MOTIVATION 7	**Introjected motivation**	"I do this work because I want to succeed at this job, if not I would be very ashamed of myself"

MOTIVATION 8	**External motivation**	"I do this job for the income it provides me"
MOTIVATION 9	**Amotivation**	"I ask myself this question, I don't seem to be able to manage the important tasks related to this work"

JOB PERFORMANCE QUESTIONS

JOB PERFORMANCE BREAKDOWN

Note: All Questions Are Asked For Three Months (January, February, March) Separately

MRP	CNRP	CM
Please state the number of VO monthly meetings you attended in these months: Please refer to your register for these numbers.	Please state the number of VO monthly meetings you attended in these months: Please refer to your register for these numbers.	Please state the number of VO monthly meetings you attended in these months: Please refer to your register for these numbers.
Number of CMs trained in these months	Please state the number of annaprashan/muhjhutti divas you attended in these months	Number of weekly meetings with SHGs in this month
Number of CLF meetings attended in these months	Please state the number of times you visited beneficiary children and mothers' homes in these months	Number of specialised training provided to the SHGs in this month
Number of block-level review meetings attended in these months	Please state the number of vaccination/health festivals attended in	Number of bank-related documents prepared for the SHGs in this month

	these months	
Please state the number of days you worked for JEEViKA in these months	Please state the number of days you worked for JEEViKA in these months	Please state the number of days you worked for JEEViKA in these months